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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/643,912	08/23/2000	Kiyoshi Asami	001062	9494

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EXAMINER

NGUYEN, TU MINH

ART UNIT PAPER NUMBER

3748

DATE MAILED: 03/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
**09/643,912**

Applicant(s)  
**Asami et al.**

Examiner  
**Tu M. Nguyen**

Art Unit  
**3748**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Feb 10, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Aug 23, 2000 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) <input type="checkbox"/> Other:  |

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### **DETAILED ACTION**

1. This Office Action is in response to an Applicant's Request for Continued Examination (RCE) filed on February 10, 2003.

Per instruction from the RCE, an Applicant's Amendment filed on January 13, 2003 has been entered. Claims 5-7 have been amended. Overall, claims 5-8 are pending in this application.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. (U.S. Patent 5,801,499) in view of Tomisawa (U.S. Patent 5,606,855).

Re claim 5, as illustrated in Figures 1, 3, 6, and 7, Tsuzuki et al. disclose a catalyst warming control apparatus for a hybrid vehicle asserting control over the vehicle both when the vehicle is moving and when the vehicle is standing still (see Response to Arguments below), having an internal combustion engine (10), a generator (40) for generating electric power from an output of the internal combustion engine, a power storage unit (44) for storing electric power

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generated by the generator, and an electric motor (40) driven by the electric power stored in the power storage unit, the hybrid vehicle being driven by at least one of the internal combustion engine and the motor, the catalyst warming control apparatus comprising:

- a clutch (21) for performing the connection or disconnection of the transmission of the power between the generator connected to the engine and to the motor;

- a temperature detector (17) for detecting the temperature of a catalyst (16);

- a first comparison circuit for comparing the detected result from the temperature detector with a preset first reference value (step S13); and

- a control circuit for allowing the generator to generate electric power and to store the power in the power storage unit when the internal combustion engine is driven, and when the detected result from the temperature detector is equal to or below the first reference value (step S13 with N answer and steps S28-S35; line 61 of column 9 to line 8 of column 10).

Tsuzuki et al., however, fail to disclose that the temperature detector can be removed by estimating a temperature of the catalyst using a coolant temperature detector that detects an engine temperature.

Tomisawa teaches an apparatus for estimating the temperature of a catalyst simply and accurately by using a coolant temperature sensor (15). Tomisawa further teaches that the apparatus does not include an additional temperature sensor located at the catalyst, which can incur more cost to the apparatus (lines 64+ of column 1). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the

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apparatus taught by Tomisawa in the apparatus of Tsuzuki et al., since the use thereof would have saved cost and lowered the complexity of the apparatus.

Re claim 6, the modified apparatus of Tsuzuki et al. further comprises:

- a remaining charge detector (45) for detecting a remaining charge of the power storage unit; and

- a second comparison circuit for comparing the detected result from the remaining charge detector with a preset second reference value (DEFINED VALUE 1 in Figure 6) relating to the remaining charge,

wherein the control circuit drives the vehicle by the output from the internal combustion engine, engages the clutch, and allows the generator to generate electric power and to store the power in the power storage unit, when the detected result from the temperature detector is equal to or below the first reference value according to the output from the first comparison circuit, and when the detected result from the remaining charge detector is equal to or below the second reference value relating to the remaining charge according to the output from the second comparison circuit (see Figures 6 and 7 and lines 13-40 of column 11).

Re claim 7, the modified apparatus of Tsuzuki et al. further comprises:

- a remaining charge detector (45) for detecting a remaining charge of the power storage unit; and

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- a second comparison circuit for comparing the detected result from the remaining charge detector with a preset second reference value (DEFINED VALUE 2 in Figure 6) relating to the remaining charge,

wherein the control circuit allows the generator to generate electric power, disengages the clutch, and drives the vehicle by the generated electric power and stores the electric power, when the detected result from the temperature detector is equal to or below the first reference value according to the output from the first comparison circuit, and when the detected result from the remaining charge detector is above the second reference value relating to the remaining charge according to the output from the second comparison circuit (see Figures 6 and 7 and lines 13-40 of column 11).

Re claim 8, in the modified apparatus of Tsuzuki et al., the control circuit allows the generator to generate electric power, and drives the vehicle by the motor, when the detected result from the temperature detector is equal to or below the first reference value according to the output from the first comparison circuit, and when the detected result from the remaining charge detector is above the second reference value (DEFINED VALUE 2 in Figure 6) relating to the remaining charge according to the output from the second comparison circuit (see Figures 6 and 7 and lines 13-40 of column 11).

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***Response to Arguments***

4. Applicant's arguments with respect to the reference of Tsuzuki et al. applied in the previous Office Action have been fully considered but they are not persuasive.

In response to applicant's argument that 1) Tsuzuki et al. do not perform any specific control when the temperature of the catalyst is low; 2) Tsuzuki et al. do not give a load to the engine when the temperature of the catalyst is low; and 3) Tsuzuki et al. only maintain the engine in the idling state and do not have any control for increasing the temperature (of the catalyst) when the vehicle is moving (page 6 of Applicant's Amendment), the examiner respectfully disagrees.

Regarding 1) and 3), as shown in Figure 3, if the catalyst temperature in Tsuzuki et al. is below a lower limit, that signals a degradation of the catalyst function to purify exhaust gas (step S13 with N answer), the controller proceeds to execute steps S27-S35 to raise the catalyst temperature. These steps S27-S35 are executed regardless of the operational conditions of the vehicle (moving or standing still) since a check on the vehicle speed is only performed at a later step S14. In fact, it appears the steps S27-S35 are also executed if the vehicle is moving (step S14 with N answer). The specific control at idling state in Tsuzuki et al. that applicant believes is their main objective, is not at all performed if the catalyst temperature is below a lower limit (see lines 3-10 of column 2).

Regarding 2), if a temperature of their catalyst is lower than a threshold limit to purify exhaust gas, Tsuzuki et al. operate the internal combustion engine to move the vehicle and to

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raise the catalyst temperature. Since the engine works to move the vehicle, it is obvious to one with ordinary skill in the art that a load is being <sup>imposed</sup> given to the engine.

*Communication*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 308-7763.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

*Tu M. Nguyen*

TMN

Tu M. Nguyen

March 5, 2003

Patent Examiner

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*Thomas Denion*  
THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
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